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THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP
600 GALLERIA PARKWAY, S.E.
STE 1500
ATLANTA, GA 30339-5994

EXAMINER	
MURDOCH, CRYSTAL A	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/533,458	PEREY ET AL.	
	Examiner	Art Unit	
	CRYSTAL MURDOCH	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 May 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/19/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

I. Information Disclosure Statement

The information disclosure statement (IDS) submitted on 19 July 2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

II. Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims.

Regarding the features of claim 1, FIG. 2 of the instant application illustrates a visual display system comprising a processor (CPU 200) and a graphical processing unit (GPU 234). Examiner will presume the "data store" of claim 1 corresponds to the System Memory 210 of FIG. 2, though this correspondence is not clear by the drawings. FIGS. 1-4 do not show:

- An occlusion counter;
- Means for computing display characteristics
- Replacing a color portion of data characterizing the respective CLPs with digital information;
- Mapping three-dimensional coordinates of the CLPs into a two-dimensional display space,

- Determining whether the respective CLPs are visible with respect to a fixed point in front of the two-dimensional display, and returning an indication of same;
- Receiving the indications at the occlusion counter and incrementing a data store;
- Using a data store to control a display of the CLPs in accordance with the digital information; or
- Means for computing display characteristics of the respective CLPs in accordance with the contents of the data store.

Independent 10 Claim 10 requires additional features which are also lacking illustration:

- Incrementing a data store used to control a display of the respective CLPs as the respective indications are returned, in accordance with the digital information.

The features of independent claims 13 and 14 are also lacking appropriate illustration in FIGS. 1-4.

The above-listed claimed elements must be shown or the features canceled from the claims. No new matter should be entered.

In the interest of brevity, Examiner notes that this is not an exhaustive list of claimed elements lacking corresponding illustration in the figures. Applicant's assistance is requested to ensure that all claimed elements find corresponding features in the drawings.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed

of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

III. Specification

The disclosure is objected to because the lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. Any appropriate correction is required.

IV. Claim Objections

Claim 10 is objected to because the preamble recites, "... a calligraphic light points (CLPs)..." which is a single article ("a") modifying a plural noun ("points"). Appropriate correction is required.

V. Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. Lacks Antecedent Basis

Claim 1 recites the limitation "the contents of the data store" in lines 19-20. While the data store finds proper antecedent basis in line 15, there is insufficient antecedent basis for the contents of the data store in the claim.

Claim 8 recites the limitation "the sub-pixel counter" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 10 recites the limitation "the contents of the data store" in line 17. While the data store finds proper antecedent basis in line 12, there is insufficient antecedent basis for the contents of the data store in the claim.

Claim 12 recites the limitation "the step of displaying" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "the information" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

B. Relative Term or Degree

The term "may" in claims 13 and 14 is a relative term which renders the claim indefinite. The term "may" is not defined by the claim, the

specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

In claim 13, it is unclear whether the color values are actually replaced by digital information, some other type of information, or even replaced. Similarly, it is unclear whether the two-dimensional data points are stored according to the digital information, some other information, or even stored at all.

In claim 14, it is unclear whether the data point is stored in the data store according to digital information, some other information, or stored in a location that is not the data store, or not stored at all.

C. Indefinite

Claim 3, as it depends from claim 2, recites the limitation "the processor" in line 2. It is unclear whether this is intended to modify the graphics processor of claim 2, or the processor of claim 1.

Claim 4 requires a GPU to operate in two modes, but it is unclear whether the modes are mutually exclusive for one CLP, or whether the GPU operates in both modes simultaneously for two independent CLPs. If Applicant intends the GPU to enter a mode exclusively for each CLP,

changing each instance of "a CLP" to "the respective CLP" should help to clarify.

Furthermore, regarding claim 4, use of the word "they" on line 3 of and "it" on line 5 are indefinite because it is unclear to whom "they" and to what "it" are referring. It seems as though "they" could be referencing the first mode or the GPU. Similar confusion exists concerning "it," since it is unclear whether it is the GPU or the second mode which returns the indication.

VI. Claim Rejections - 35 USC § 101

Claims 14-15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 14 is rejected because it is directed towards a data point, which falls under the judicial exception of an abstract idea that lacks a useful, concrete, and tangible result. Since the claim is directed toward attributes of the data and not toward the writing, updating, sending, or storing of the data, the claim is non-statutory.

Claim 15 is rejected because it depends from non-statutory claim 14.

VII. Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

A. Claims 1, 5, and 8-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Baker et al. (US Patent Application Number 5,363,475, herein referred to as Baker.).

Regarding independent claim 1, Baker teaches a visual display system for displaying calligraphic light points (CLPs) on a two-dimensional display (See Baker: Col. 23, Lns. 36-43, "The display image is made up from a regular array of pixels which do not overlap and which together cover all of the screen. Each pixel is projected by the raster scan display device as an area of uniform color and intensity although pixels may be overwritten by calligraphic light points as described below."), comprising:

- A processor for replacing a color portion of data characterizing the respective CLPs with digital information (See Baker: Col. 39, Lns. 35-41, "CLPs are projected after the raster scan projection of the contents of the frame store. The CLPs are superimposed on the raster image.

The intensity of a CLP must take account of translucent features between that CLP and the eyepoint and thus CLPs are processed after all the features have been entered into the appropriate translucency stacks.");

- A graphical processing unit (GPU) for:
  - Mapping three-dimensional coordinates of the CLPs into a two-dimensional display space (See Baker: Col. 12, Lns. 48-55, "The extracted model-describing data is passed to a transformation engine (TE) 3 which performs two main functions, that is geometric transformation of model feature data from the database or world coordinate system to the observers or eyepoint coordinate system and perspective transformation from the 3-D eyepoint coordinate system to a 2-D screen space coordinate system."),
  - Determining whether the respective CLPs are visible with respect to a fixed point in front of the two-dimensional display (See Baker: Col. 40, Lns. 35-40, "The accumulated attenuation represents an attenuation factor which is a measure of the visible portion of the CLP within that cell after occulting (by nearer opaque features) and attenuation (by nearer translucent features) have been taken into account."), and

- Returning an indication of same (See Baker: Col. 40, Lns. 27-32, "The projection techniques for CLPs mean that any CLP is projected as a circular spot with a Gaussian intensity distribution. Intensity modulation within one CLP is not possible. Therefore the intensity of the CLP must be calculated as a function of its accumulated aperture and attenuation.");

- An occlusion counter for receiving the indications and incrementing a data store used to control a display of the CLPs in accordance with the digital information (See Baker: Col. 40-41, Lns. 63-2, respectively, "Light point attribute data is received from the object processors and stored in an attribute store 107. A CLP draw order list for each string of CLPs is also received from the object processors and stored in a draw order list store 108. The stored lists are used by a draw order controller 109 to address a CLP store 110 so that a CLP display interface 111 receives CLP display data in an appropriate order."); and
- Means for computing display characteristics of the respective CLPs in accordance with the contents of the data store (See Baker: Col. 39, Lns. 12-15, "The translucency of light points is calculated as a function of light point intensity. The intensity of RLPs and CLPs is calculated in the light point store initially assuming no intervening features...").

Regarding independent claim 10, Baker teaches a method of displaying a calligraphic light points (CLPS) on a two-dimensional display (See Baker: Col. 23, Lns. 36-43, "Each pixel is projected by the raster scan display device as an area of uniform color and intensity although pixels may be overwritten by calligraphic light points as described below."), comprising steps of:

- Replacing a color portion of data characterizing the respective CLPs with digital information (See Baker: Col. 39, Lns. 35-41, "CLPs are projected after the raster scan projection of the contents of the frame store. The CLPs are superimposed on the raster image. The intensity of a CLP must take account of translucent features between that CLP and the eyepoint and thus CLPs are processed after all the features have been entered into the appropriate translucency stacks.");
- Mapping three-dimensional coordinates of the respective CLPs into a two-dimensional space (See Baker: Col. 12, Lns. 48-55, "The extracted model-describing data is passed to a transformation engine (TE) 3 which performs two main functions, that is geometric transformation of model feature data from the database or world coordinate system to the observers or eyepoint coordinate system and perspective

transformation from the 3-D eyepoint coordinate system to a 2-D screen space coordinate system.");

- Determining whether the respective CLPs are visible with respect to a fixed point in front of the two-dimensional display (See Baker: Col. 40, Lns. 35-40, "The accumulated attenuation represents an attenuation factor which is a measure of the visible portion of the CLP within that cell after occulting (by nearer opaque features) and attenuation (by nearer translucent features) have been taken into account.") and returning an indication of same (See Baker: Col. 40, Lns. 27-32, "The projection techniques for CLPs mean that any CLP is projected as a circular spot with a Gaussian intensity distribution. Intensity modulation within one CLP is not possible. Therefore the intensity of the CLP must be calculated as a function of its accumulated aperture and attenuation.");
- Incrementing a data store used to control a display of the respective CLPs as the respective indications are returned, in accordance with the digital information (See Baker: Col. 40-41, Lns. 63-2, respectively, "Light point attribute data is received from the object processors and stored in an attribute store 107. A CLP draw order list for each string of CLPs is also received from the object processors and stored in a draw order list store 108. The stored lists are used by a draw order

controller 109 to address a CLP store 110 so that a CLP display interface 111 receives CLP display data in an appropriate order."); and

- Computing display characteristics of the respective CLPs in accordance with the contents of the data store (See Baker: Col. 39, Lns. 12-15, "The translucency of light points is calculated as a function of light point intensity. The intensity of RLPs and CLPs is calculated in the light point store initially assuming no intervening features...").

Regarding independent claim 13, Baker teaches a graphical processing unit (GPU) adapted to accept a series of three-dimensional data points each containing a color value and map the three-dimensional data points to a two-dimensional display space, wherein:

- The color values of the data points provided to the GPU may be replaced by digital information (See Baker: Col. 39, Lns. 35-41, "CLPs are projected after the raster scan projection of the contents of the frame store. The CLPs are superimposed on the raster image. The intensity of a CLP must take account of translucent features between that CLP and the eyepoint and thus CLPs are processed after all the features have been entered into the appropriate translucency stacks."),

- The mapped two-dimensional data points may be stored according to the digital information provided in the data point (See Baker: Col. 3, Lns. 39-41, "As the color and intensity of each feature is processed, this, together with its Z-depth, is loaded into a frame store.").

Regarding independent claim 14, Baker teaches a data point comprising

- A coordinate portion and a color portion for processing by a graphical processing unit (See Baker: Col. 2, Lns. 33-40, "Each pixel is on a unique predetermined imaginary viewing line extending from the eyepoint to the screen and notionally extending through the screen onto the surface of the model defined by the data in the active database. This means that the world space coordinate system of the database must be transformed using the eyepoint coordinates into a screen space coordinate system."), wherein
  - The color portion stores digital information so that the processed data point may be stored in a data store according to the digital information provided in the color portion (See Baker: Col. 29, Lns. 37-46, "This output is applied to the color mixer 51 where further effects such as ambient lighting are processed, the color mixer delivering an RGBT (red, green, blue translucency) output for each pseudo-pixel to the post-sorter 52. The light point store 53

processes light points in association with the color mixer and the post-sorter as described in more detail below, the light point store 53 providing the output 55, and the post-sorter providing an output to the frame store 54. The frame store provides output 56 to the raster display device 5 (FIG. 1).").

Regarding claim 5, as it depends from claim 1, Baker teaches the processor is adapted to compute a percentage of the CLPs that were visible in a previous frame displayed by the visual system and select a mode of operation for the GPU based on the percentage computed (See Baker: Col. 40, Lns. 54-61, "Since CLPs can overlap more than one adjacent cell, the final calculation of intensity must be deferred until all cells covered by the CLP have been processed by the post-sorter. The final intensity is given by summing the aperture contributions from all the overlapped cells, summing the attenuation contributions from all the overlapped cells, and forming the quotient of the two generated sums.").

Regarding claim 8, as it depends from claim 1, Baker teaches the sub-pixel counter comprises an application-specific integrated circuit (See Baker: Col. 24, Lns. 50-52, "Each line processor is in the form an identical application specific integrated circuit (ASIC) which can be by

the state machine 41. Each of these ASICs is referred to herein as a Dlet and performs a variety of functions depending on the mode selected.").

Regarding claim 9, as it depends from claim 1, Baker teaches the means for computing comprises a calligraphic subsystem comprising means for computing a color attenuation of each CLP that is visible with respect to the fixed point (See Baker: Col. 39, Lns. 59-63, "At each sampling point, the attenuation of a CLP impacting that sampling point is calculated as a function of the translucency of the features identified in the translucency stack as being nearer to the eyepoint than the CLP.").

Regarding claim 11, as it depends from claim 10, Baker teaches the step of incrementing comprises using the digital information as an index into the data store and incrementing a portion of the data store indexed thereby (See Baker: Col. 40-41, Lns. 63-2, respectively, "Light point attribute data is received from the object processors and stored in an attribute store 107. A CLP draw order list for each string of CLPs is also received from the object processors and stored in a draw order list store 108. The stored lists are used by a draw order controller 109 to address a CLP store 110 so that a CLP display interface 111 receives CLP display data in an appropriate order.").

Regarding claim 12, as it depends from claim 10, Baker teaches the step of displaying comprises displaying the CLP over an underlying two dimensional graphical display to provide increased intensity to the display at the coordinates corresponding to the CLP (See Baker: Col. 39, Lns. 36-41, "The CLPs are superimposed on the raster image. The intensity of a CLP must take account of translucent features between that CLP and the eyepoint and thus CLPs are processed after all the features have been entered into the appropriate translucency stacks.").

Regarding claim 15, as it depends from claim 14, Baker teaches the information identifies the data point (See Baker: Col. 29, Lns. 37-46, wherein the location of a data point within the frame store is information identifying a data point.).

VIII. Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for

determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

A. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker.

Regarding claim 2, as it depends from claim 1, Baker does not expressly suggest that the GPU comprises a commercially available unit adapted to perform three-dimensional raster image processing. Nevertheless, Baker uses processors to process 3D graphics (See Baker: Col. 6, Lns. 35-38, "Most real time 3D graphics systems contain parallel processors which transform input data from three (world space) dimensions to two (screen space) dimensions."). It is well known in the art of computer graphics to use commercially available processors to process graphical information. It would have been obvious to one of ordinary skill in the art at the time of the invention to have used commercially available processors to process the graphics data in Baker because it is more cost effective and time efficient to buy existing processors than it is to design and create processors from scratch.

Regarding claim 3, as it depends from claim 2, Baker teaches the processor is adapted to change a content of a color buffer base pointer address register of the GPU (See Baker: Col. 39, Lns. 35-38, "CLPs are projected after the raster scan projection of the contents of the frame store. The CLPs are superimposed on the raster image.").

Regarding claim 4, as it depends from claim 1, Baker teaches the GPU is adapted to operate in:

- A first mode which returns a first indication of the visibility of a CLP (See Baker: Col. 40, Lns. 40-53, "For example, if a CLP is computed to fall totally within one cell, and its size is computed such as to cover twenty sampling points in the respective cell, its aperture is 20. If there is one nearer opaque feature that obscures ten of those sampling points, the attenuation factor is computed to be 10... In the first case, the final intensity of the CLP is modified by a factor of 0.5 (attenuation factor (10) divided by aperture (20)).") and
- A second mode which returns a second indication of the visibility of a CLP (See Baker: Col. 40, Lns. 40-53, "As another example, if there is one nearer translucent feature that covers ten of those twenty sampling points and has a translucency value of 0.5, the attenuation factor is computed to 15... In the second case, the final intensity of the CLP is modified by a factor of 0.75 (attenuation factor (15) divided by aperture (20)).").

Baker does not provide examples for the specific instances when a CLP is not occluded (100% visible) or entirely occluded (0% visible). However, from the teachings of Baker, one of ordinary skill would readily see the

correspondence between the final intensity factor calculation and the attenuation of the CLP caused by occlusion of translucent and opaque objects.

Specifically, if the CLP is 100% visible (no occlusion), then the twenty sampling points in the respective cell, less the number of occluded sampling points (which is 0.0), results in an attenuation factor of 20, and therefore the final intensity of the CLP would be modified by a factor of 1.0 (attenuation factor (20) divided by aperture (20)). This intensity value is returned indicating no occlusion, and the CLP is rendered accordingly (See Baker: Col. 40, Lns. 27-32).

Similarly, if the CLP is 0% visible (entirely occluded), then the twenty sampling points in the respective cell, less the number of occluded sampling points (which is 20), results in an attenuation factor of 0.0, and therefore the final intensity of the CLP would be modified by a factor of 0.0 (attenuation factor (0) divided by aperture (20)). This intensity value is returned indicating total occlusion, and the CLP is rendered accordingly (See Baker: Col. 40, Lns. 27-32).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have used various "modes" for returning the visibility

parameters of a CLP for rendering, including modes which return an indication that the CLP is completely occluded or completely visible, as suggested above, in order to properly render the intensity of a CLP using the accumulated aperture and attenuation calculations, as taught by Baker, because in indication of the intensity of the CLP as observed by the viewer is necessary for proper rendering and viewing of the CLP within a scene.

B. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker, as applied above to claim 1, and in further view of Lebby et al. (US Patent Number 6,115,618, herein referred to as Lebby.).

Regarding claims 6 and 7, as they depend from claim 1, Baker teaches, "The stored lists are used by a draw order controller 109 to address a CLP store 110 so that a CLP display interface 111 receives CLP display data in an appropriate order (See Baker: Fig. 32, Item 109; Col. 40-41, Lns. 66-2, respectively)," wherein the draw order controller 109 corresponds to the occlusion counter. Baker does not expressly suggest that the controller comprises a field programmable gate array or a digital signal processor. Nevertheless, Lebby is cited for teaching, "Portable electronic device 10 includes a transceiver 50 having a data output connected to a controller 52 which may be a microprocessor, a DSP, a

gate array, specially designed logic circuits, etc. (See Lebby: Col. 4, Lns. 30-33)."

A person of ordinary skill in the art would have had good reason to pursue the known options of various controllers within an electronic display device. It would have been obvious to one of ordinary skill in the art at the time of the invention to use "...controller 52 which may be a microprocessor, a DSP, a gate array, specially designed logic circuits, etc." of Lebby as the controller 109 of Baker, such modification requiring no more than "ordinary skill and common sense," nor resulting in any unexpected results.

IX. Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CRYSTAL MURDOCH whose telephone number is (571)270-1043. The examiner can normally be reached on Mon. - Fri. 10:00 am to 6:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on 5712727782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/CRYSTAL MURDOCH/
Examiner, Art Unit 2628

/Kee M Tung/
Supervisory Patent Examiner,
Art Unit 2628